IN THE CLAIMS:

Please cancel Claims 43 and 44, and amend Claims 31 and 35 as shown below. The claims, as currently pending in the application, read as follows:

1. to 30. (Cancelled).

31. (Currently Amended) An electromagnetic wave generating device for generating an electromagnetic wave having a frequency ranging from 30 GHz to 30 THz, including:

a laser device;

an optical waveguide for propagating a laser beam emitted from the laser device;

a photoconductive switch for converting the laser beam propagated through the optical waveguide to the electromagnetic wave; and

a transmission line comprising a conductor for propagating the electromagnetic wave converted by the photoconductive switch,

wherein the laser device, the optical waveguide, the photoconductive switch and the transmission line are integrated on a substrate [[as]] and arranged in a plane of the substrate,

wherein a first electrode and a second electrode are provided on an upper surface of the photoconductive switch such that a gap is formed between the electrodes at an end of the upper surface, which end is closer to the optical waveguide, and

wherein the optical waveguide is arranged such that the laser beam propagated through the optical waveguide irradiates a lateral surface of the photoconductive switch, which lateral surface is closer to the optical waveguide, at a portion corresponding to the gap.

32. (Previously Presented) An electromagnetic wave generating device according to claim 31, wherein an insulator is provided between the substrate and the conductor of the transmission line and the insulator is made of the same material as the optical waveguide.

33. (Previously Presented) An electromagnetic wave generating device according to claim 31, wherein an insulator is provided between the substrate and the conductor of the transmission line, the insulator and the optical waveguide being made of one and the same material having photosensitivity and being formed in a plane; and wherein the optical waveguide is formed by mask patterning and light exposure techniques such that the optical waveguide has a higher refractive index than the insulator.

34. (Previously Presented) An electromagnetic wave generating device according to claim 31, wherein the first and second electrodes are connected to the conductor of the transmission line.

35. (Currently Amended) An electromagnetic wave generating device according to claim 31, wherein the generating device further includes a detection means for detecting the electromagnetic wave propagated through the transmission line as an electrical signal.

36. (Previously Presented) An electromagnetic wave generating device according to claim 35, wherein the detection means is selected from a Schottky barrier diode, a second photoconductive switch, and a combination of an EO crystal and a photodetector.

37. (Previously Presented) An electromagnetic wave generating device according to claim 35, wherein the conductor of the transmission line extends from the photoconductive switch to the detection means.

38. (Previously Presented) An electromagnetic wave generating device according to claim 31, wherein the laser device comprises two laser devices having different oscillation wavelengths and the optical waveguide is a Y-branch optical waveguide, the generating device being capable of operate such that two lights emitted from the two laser devices are mixed with each other in the Y-branch optical waveguide and introduced into the photoconductive switch and the photoconductive switch generates an electrical signal corresponding to a differential frequency of the two laser devices.

39. (Previously Presented) An electromagnetic wave generating device according to claim 31, wherein the laser device is capable of emitting a laser pulse, wherein the optical waveguide is capable of propagating the laser pulse emitted from the laser device and dividing the laser pulse into two laser pulses, one of the two laser pulses being converted to the electromagnetic wave in the photoconductive switch while the other being guided to the detection means, wherein an optical delay unit for delaying a laser pulse is provided in the optical waveguide extending to the detection means, and wherein a time waveform of a short pulse electrical signal is measured while the optical delay unit varies a delay amount.

40. (Previously Presented) An electromagnetic wave generating device according to claim 31, wherein the generating device further includes an antenna formed on the substrate,

the antenna being capable of radiating an electromagnetic wave propagated through the transmission line to an outer space and receiving an electromagnetic wave from an outer space to propagate it through the transmission line to the detection means.

41. (Previously Presented) A high frequency sensing method using an electromagnetic wave generating device according to claim 31, which comprises measuring information of an object placed on the transmission line.

42. (Previously Presented) A high frequency sensing method using an electromagnetic wave generating device according to claim 40, which comprises measuring information of an object spaced from the electromagnetic wave generating device.

43. to 44. (Cancelled).